REMARKS

These remarks follow the order of the paragraphs of the office action. Relevant portions of the office action are shown indented and italicized.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1 .17(e). was filed in this application after allowance or after an Office action under Ex Parte Quayle, 25 USPQ 74, 453 O.G.213 (Comm'r Pat. 1935)- Since this application is eligible for continued examination under 37 CFR 1 .114, and the fee set forth in 37 CFR 1.17(e) has bean timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's amendment to the specification, flied on September 6, 2005, has not been entered because tile amendment is improper. Since the application originally claims the benefit under 35 U.S.C. 120 of any United States Application(s) or 365(c) of any PCT International application designating the United States (as is indicated on the declaration filed November 17, 2003). it is improper to amend the specification to indicate the application being filed under 35 U.S.C. 371.

In response, applicants respectfully state that the amendment to the specification is corrected herein.

Since the petition to withdraw from issuance was filed in order to provide the relationship information [that is a continuation] for the claim of priority from PCT/IB01/00121, flied on Jan. 31, 2001 (see Petition to Withdraw from Issuance 37 CFR 1 .313(c)2 filed September 6, 2005), the specification needs to be amended to contain a reference to the international application number and international filing date and indicating the relationship of the applications (i.e. continuation, continuation-in-part, or division). See 37 CFR 1.78(a)(2)(i) and MPEP § 201.11. An example of an appropriate first sentence of the specification is, for example, "This is a continuation of International Application PCT/EP2004/000000, with an international filing date of January 5, 2004, now abandoned."

Furthermore, since the reference is not submitted in accordance with 37 CFR 1 .76(a)(2)(ii) applicant needs to file a petition under 37 CFR 1.78(a}(31 to have the reference accepted it the submission of the reference was unintentionally delayed.

Applicant also needs to certify that the international application was not withdrawn or considered to be withdrawn, either generally or as to the United States, prior to the filing date of the national application claiming benefit under 35 U.S.C. 120 and 365(c) to such international application to support copendency with the prior international application (see MPEP 1895.01 [R-2]) - as the USPTO was not the receiving Office of the international application file.

In response, applicants respectfully state a petition was filed with the Office of Petitions with the required information.

Claim Objections

2. Claims 8-10, 17-20 are objected to because of the following informalities: applicant applies shorthand drafting to make the claims appear to be dependent. The aforementioned claims are, however, clearly independent claims as indicated by their distinct preambles. Applicant's Deposit Account #09-0468 will be charged $1200.00 for six independent claims that are in excess of the basic three independent claims - per 37 CFR 1.16(h), and as authorized in the July 15,2003 Transmittal Letter.

In response, applicants respectfully state as per a telephone conference with the Examiner, claims 8 and 9 satisfy the infringement test and are as originally submitted. Claim 10 is amended to overcome the rejection. Claims 17-20 are amended to better indicate that each has all the limitations of the claim it depends upon. All claims 8-10, 17-20 are dependent claims and no new fee is required.

Claim Rejections -35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact farms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention. Page 40, lines 3-5 discloses "The payload portion comprises a plurality of fields each containing the identity of the LCP channel that indicated the completion event". It appears that the cited portion only supports a payload portion having a plurality of fields, each corresponding to one of the ports - rather than to a different one of the ports In the example of FIG. 18, there are 28 fields in the payload portion. Each field of payload portion contains the identity of the LCP channel (ports) that indicated the completion event (the interrupt) - hence a payload portion having a plurality of fields, each corresponding to one of the ports. The limitation "a plurality of fields each corresponding to a different one of the port" would require 28 different ports, and such limitation appears not to be supported by the specification.

Furthermore, it appears that there is no support for "moving the contents of the buffer to the corresponding fields of the payload portion - as page 38, lines 25-26 merely discloses "when preset conditions are met, an Interrupt Control Block (ICB) 1680 is generated by the ISOC 120 from the information stored in the interrupt FIFO 1660.

In response, applicants respectfully state that the claim may apparently be used for indicating an embodiment of the invention. The specification in the last sentence of the first paragraph on Page 9, reads,

"Various communication protocols can be supported simultaneously, with each protocol using a different LCP port."

So that when there are many protocols there are many different ports. 28 protocols would have 28 different ports. However, claim 1 is amended to substitute the words, 'a port', for the words 'a different one of the ports'. Also, the element, 'moving the contents of the buffer to the corresponding fields of the payload portion' is amended to 'moving the contents of the buffer to the payload portion'. This overcomes the 112 rejections of claims 1-20.

Claim Rejections - 36 USC § 103

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action: (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought In be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1 .56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al. (USP 5,968,158) in view of Satran et al. (USP 6,430,183).

8. As per claim 1, Andrews teaches an apparatus [12-0, FIG. 5] comprising: a buffer [68-0, FIG. 5; 90, FIG. 6] for storing indications of interrupts [INT BLOCK 1-INT BLOCK N, FIG. 6] generated by ports [75, 86, port connected to PCI BUS 48 - FIG. 5] of a peripheral device [10, FIG. 1], the peripheral device having a plurality of ports 70-1, 75, 86, port of 12-0 connected to PCI BUS 48, port of 12-1 connected to PCI BUS 48...of FIG. 5], said apparatus for transferring interrupts from the peripheral device to a host computer system [2, 4, FIG. 1: col. 10, lines 55-59], and a controller [64-0, FIG. 5; DMA: col. 11, line 51] for, in response to a preset condition being met [col. 11, lines 8-47], generating a control data block [a DMA data block], and sending the contents of the buffer to the host computer system via one of the ports [port connected to PCI BUS 48, FIG. 5].

Andrews essentially teaches transferring indications of interrupts from the buffer to the host computer system using DMA, instead of using a control data block comprising a payload portion having a plurality of fields each corresponding to one of the ports and a header portion having an identifier for identifying the control data block, moving the contents of the buffer to the fields of the payload portion, and sending the control data block to the host computer system via one of the ports.

In response, applicants respectfully state that the present invention, as claimed in claims 1-20, provides methods, systems and apparatus for transferring interrupts from a peripheral device to a host computer system. Claim 1 as amended reads:

1. An apparatus comprising:

a buffer for storing indications of interrupts generated by ports of a peripheral device, the peripheral device having a plurality of ports, said apparatus for transferring interrupts from the peripheral device to a host computer system, and

a controller for, in response to a preset condition being met, generating a control data block comprising a payload portion having a plurality of fields each corresponding to a port and a header portion having an identifier for identifying the control data block,

moving the contents of the buffer to the payload portion, and sending the control data block to the host computer system via one of the ports,

moving the contents of the buffer to the payload portion of the control data block.

A review of Andrews shows that Andrews apparently does not, and is not concerned with the presently claimed invention. Andrews, filed: October 6, 1997, apparently is to provide:

> "A pair of communications adapters each include a number of digital signal processors and network interface circuits for the attachment of a multi-channel telephone line. A bus connecting the communications adapters can carry data between a network line attached to one of the adapters and the digital signal processors of the other adapter. The digital signal processors on each card are connected to a host, or controller, processor. Each digital signal processor interrupts its host processor by transmitting an interrupt control block as data to a data memory of the host processor, and by subsequently sending an interrupt causing the host processor to examine the data memory. Preferably, the interrupt control block includes data representing a number of requested interrupts."

A review of Andrews shows that Andrews apparently does not, and is not concerned with "a buffer for storing indications of interrupts generated by ports of a peripheral device. Andrews alleged buffer 68-0, in the office action, is a 128K.times.16 data storage, which does not apparently **store interrupts**. Andrews apparently does not store "indications of interrupts generated by ports of a peripheral device, the peripheral device having a plurality of ports. The alleged *peripheral device [10, FIG. 1],* is actually a communications adapter card 10, to which an ISDN line 7 is connected. Nor is there any indication in Andrews that the communications adapter card 10 has "a plurality of ports" generating interrupts, as recited in claims 1-20. Andrews apparently uses a DMA to transfer interrupts, but apparently does not store indications of these. Andrews control block includes data representing a number of requested interrupts, but not "indications of interrupts generated by ports of a peripheral device, the peripheral device having a plurality of ports."

The office action further states: "Satran teaches a control data block [First Packet Type, FIG. 2] comprising a payload portion [220, 230. FIG. 2] having a plurality of fields [a plurality of block header [220. FIG. 2] and payload data [230, FIG. 2] sections: col. 5, lines 9-15] each corresponding to a data block to be transmitted, and

a header portion [210, FIG. 2] having an identifier [211, FIG. 2] for identifying the control data block [col. 4, lines 17- 32], moving the contents of a buffer to the fields of the payload portion [data blocks to be transmitted originating from a single source: col. 4, lines 3-4], and sending the control data block to a receiver [140, FIG. 1] via a port of transmitter [110, FIG. 1].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a control data block, as is taught by Satran, in order to transfer a plurality of indications of interrupts from the peripheral device to a host computer via the port connected to PCI BUS 48 - as an alternative to using DMA to transfer the plurality of indications of interrupts from the peripheral device to a host computer.

In response, applicants respectfully state that of Satran, filed July 31, 1998, shows that Satran is to provide, "Data transmission system based upon orthogonal data stream mapping." The abstract reads:

"A data transmission system, including a plurality of transmitters for transmitting a stream of multiplexed packets over a broadband channel, the packets being constructed from a stream of variable length data blocks, each of the blocks originating from different sources. The system also includes a plurality of receivers for receiving the stream of packets from the broadband channel and reconstructing the stream of variable length data blocks. The data blocks are distributed over one or more packets. The packets also include a packet header having a source identifier (SID) for identifying the source of the packet, and the first of the packets further including a block header having a block identifier (BID) for identifying the data block being transmitted."

It is further noted that in a specific instance where the buffer contains only one indication of interrupt per port - for a plurality of ports, and the payload portion contains only a number of fields corresponding to the number of ports, each field of the payload portion would correspond to a different one of the ports, and the contents of the buffer are moved to the corresponding fields of the payload portion.

In response, applicants respectfully state that Andrews alone or even together with Satran, does not make claims 1-20 obvious. A review of Satran shows that the blocks of Satran are not the 'control data blocks' in claims 1-20. The data blocks of Satran is indicates to be used in, "packets being constructed from a stream of variable length data blocks, each of the blocks

originating from different sources. Satran states, "[T]he first packet of any given transmitted data block also contains a block identifier that identifies the block being transmitted." Satran apparently does not have a 'control data block' as used in claims 1-20. The control data block in claims 1-20 have "a payload portion, moving the contents of the buffer to the payload portion of the control data block, and sending the control data block to the host computer system." Thus, all claims 1-20 are allowable over the cited references.

Furthermore, it was shown above that Andrews does not perform any of the elements in the independent claims. Also, there is apparently no reason to combine Satran with Andrews except to allegedly find a combination of apparently unrelated art to allegedly put together the elements in claims 1-20. An office action may not employ hindsight in deciding obviousness of the invention in claims 1-20. It is indeed not obvious to combine elements in Andrews' patent directed to "Apparatus including a host processor and communications adapters interconnected with a bus, with improved transfer of interrupts between the adapters and host Processor," with the unrelated Satran patent directed to, "Data transmission system based upon orthogonal data stream mapping." Furthermore, there is no reference in Satran, the later filed patent, that it be combined with Andrews. It is known that an office action may not make a combination of references that is not referred to, in at least one of the references.

Applicants further do not agree with all the implied usage of Andrews, with or without Satran, to have the elements of the dependent claims. Further

> *9. <u>As in claims 2-4</u>, Andrews teaches the preset condition comprising a determination that the buffer is full [col. 11, lines 22-27: with the predetermined limit being set to the size of the buffer]; the preset condition comprising a determination that at least a predetermined plurality of indications is stored in the buffer and that a predetermined period has elapsed [col. 11, lines 35-40]; the preset condition comprising a determination that at least one indication is stored in the buffer and that a predetermined period has elapsed [col. 11, line 28-35] 10. <u>As per claim 5</u>, Satran does not specifically teach the header portion comprising a count indicative of the number of indications included in the payload portion. Since it was known in the art at the time the invention was made to use a count in a header of a packet to indicate the number data blocks contained in the packet - for packets with multiple data blocks, it*

would have been obvious to one of ordinary skill in the art at the time the invention was made to include a count in the header portion of the control data block in order to indicate of the number of indications of interrupts included in the payload portion of the control data block.

11. As per claim 6, Satran does not teach the header portion comprising a time of day stamp. Since it was known in the art at the time the invention was made to include a time of day stamp to keep track of the packet processing order to maintain coherency, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a time of day stamp in the header portion of the control data block in order to keep track of the order for processing the control data block.

12. As per Claim 7, Andrews teaches the buffer comprising a FIFO memory buffer [col. 10 line 60 - col. 11, line 7].

13. As per claims 8-10, Andrew teaches a peripheral device [10, FIG. 1] comprising the apparatus [12-0, FIG. 5]; a data communications network interface [10 FIG. 1] comprising the peripheral device; a data processing system [FIG. 1] comprising a host processing system [2,4, FIG. 1] having a memory [89, FIG. 5], a data communications interface [4, FIG. 5] for communicating data between the host computer system and a data communications network [8, FIG. 1], and the apparatus 12-0, FIG. 1], for controlling flow of interrupts from the data communication interface to the memory of the host computer system.

14. As per claims 11-20, claims 11-16 generally correspond to claims 1-5, 7 and are rejected on the same basis as claims 1-5. 7;

Claim 17 generally corresponds to claim 1, and is rejected on the same basis as claim 1;

Claim 18 generally corresponds to claim 10, and is rejected on the same basis as claim 10;

Claims 19-20 generally correspond to claim 11 and are rejected on the same basis as claim 11

In response, applicants respectfully state that all independent claims have elements and/or steps that are not in, or made obvious by, the cited references alone or in combination. Thus claims 1-20 are allowable as amended over the references.

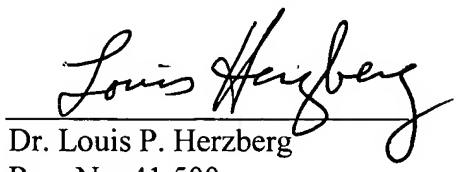
Response to Arguments

15. Applicant's arguments flied September 6, 2005 with respect to the specification have been fully considered and addressed in the action.

Applicants filed a petition as required by the office action.

Please charge any fee necessary to enter this paper to deposit account 50-0510.

Respectfully submitted,

By: 

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